



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**  
**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Re:           Applicant:           Denis REIBEL, et al.  
                  Application No.:   10/537,082  
                  Filing Date:       January 20, 2006  
                  For:               THREE DIMENSIONALLY SHAPED PLANAR CABLE,  
  METHOD FOR PRODUCTION AND USE THEREOF  
  
                  Confirmation No.: 8094  
                  Examiner:         William H. Mayo III  
                  Art Unit:          2831  
                  Attorney Docket: 331.1095  
                  Customer No.:   23280

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Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

January 25, 2008

**APPELLANTS' BRIEF UNDER 37 C.F.R. 41.37**

Sir:

Appellants submit this brief for the consideration of the Board of Patent Appeals and Interferences (the "Board") in support of their appeal of the Final Office Action dated January 19, 2007 in this application. The statutory fee of \$500.00 is submitted herewith. Applicants also submit a petition for a five (5) month extension of time along with a check in the amount of \$2230.00 to cover the statutory fee required under 37 C.F.R. 1.17(a). This Appeal Brief is submitted along with a Petition for Revival of an Application for Patent Abandoned Unintentionally Under 37 C.F.R. 1.137(b), along with a check in the amount \$1540.00 to cover the statutory fee required under 37 C.F.R. 1.17(m).

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### 1. REAL PARTY IN INTEREST

The real party in interest is Carl Freudenberg KG, a German corporation having a place of business in Weinheim, Germany, and the assignee of the entire right, title and interest in the above-identified patent application. The invention was assigned to Carl Freudenberg KG by assignment by inventors Denis Reibel and Thorsten Frank. The assignment was recorded on January 20, 2006 at reel 017476, frame 0190.

### 2. RELATED APPEALS AND INTERFERENCES

Appellants, their legal representatives, and assignee are not aware of any appeal, interference or judicial proceeding that directly affects, will be directly affected by, or will have a bearing on the Board's decision in this appeal.

### 3. STATUS OF CLAIMS

Claims 1 to 12 have been withdrawn without prejudice. Claims 13 to 26 have been rejected as per the Final Office Action dated January 19, 2007.

The rejection to claims 13 to 26 thus is appealed. A copy of appealed claims 13 to 26 is attached hereto as Appendix A.

### 4. STATUS OF AMENDMENTS

No amendments to claims were filed after the Advisory Action. A Notice of Appeal was filed on May 18, 2007 and received by the U.S.P.T.O. on May 22, 2007.

## 5. SUMMARY OF THE CLAIMED SUBJECT MATTER

Independent claim 13 recites “a three-dimensionally shaped flat cable comprising:

a laminate including at least one conductor track enclosed between two insulation layers, an adhesive layer, and at least one support layer, the support layer connected to at least one of the insulation layers via the adhesive layer, the laminate being applied to a positive die and shaped by applying one of heat, radiation and pressure and fixed in a three-dimensional shape by cooling to below the glass transition temperature of the adhesive layer or by hardening the adhesive layer (e.g., page 2, paragraph [0006]).

Independent claim 22 recites “a method for manufacturing a dimensionally stable flat cable comprising:

applying to a positive die, adjusted at room temperature, a laminate, the laminate including (a) a conductor track enclosed between two insulation layers, (b) an adhesive layer, and (c) a support layer connected to at least one of the insulation layers via the adhesive layer, each of (a), (b) and (c) defining a laminate component, or applying a positive die separately to all components for the laminate (e.g., page 3, paragraph [0012], page 4, paragraph [0022]), and

shaping the laminate or the components with the aid of at least one of heat, radiation and pressure (e.g., page 3, paragraph [0012]); and

fixing the laminate or the component shape by cooling to below the glass transition temperature  $T_g$  of the adhesive layer or by hardening the adhesive layer (e.g., page 3, paragraph [0012]).

Independent claim 25 recites “a three-dimensionally shaped flat cable comprising:

a laminate including a flexible flat cable, an adhesive layer, and at least one support layer, the support layer connected to the flexible flat cable via the adhesive layer, the laminate being applied to a positive die and shaped by applying one of heat, radiation and pressure and fixed in a three-dimensional shape by cooling to below the glass transition temperature of the adhesive layer or by hardening the adhesive layer (e.g., page 3, paragraph [0012]).

#### 6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 13, 14, 16, 19, 20, 22, and 24 to 26 should be rejected under 35 U.S.C. §102(b) as being anticipated by Ainsworth et al. (U.S. Patent No. 4,924,037). Whether claims 15, 17 and 18 should be rejected under 35 U.S.C. §103(a) as being unpatentable over Ainsworth. Whether claims 21 and 23 should be rejected under 35 U.S.C. §103(a) as being unpatentable over Ainsworth in view of Takahasi et al., EP 0590694.

## 7. ARGUMENTS

### 35 U.S.C. §102(b) Rejections

#### Claims 13, 14, 16, 19, 20 and 26

Claims 13, 14, 16, 19, 20 and 26 were rejected under 35 U.S.C. §102(b) as being anticipated by Ainsworth et al. (U.S. Patent No. 4,924,037).

Ainsworth discloses a plurality of center wire conductors 1, surrounded by insulation of low dielectric 2 which is a microporous polymer such as polytetrafluoroethylene. Surrounding the insulation 2 is a layer of a polyurethane 3 that is soluble in an organic solvent. The coating 3 is applied as a primer solution to enable the jacket coating 4 to be applied with ease and good adhereability. See col. 1 line 56 to col. 2 line 26.

Claim 13 recites a three-dimensionally shaped flat cable comprising:

a laminate including at least one conductor track enclosed between two insulation layers, an adhesive layer, and at least one support layer, the support layer connected to at least one of the insulation layers via the adhesive layer, the laminate being applied to a positive die and shaped by applying one of heat, radiation and pressure and fixed in a three-dimensional shape by cooling to below the glass transition temperature of the adhesive layer or by hardening the adhesive layer.

Ainsworth does not disclose “the laminate being applied to a positive die” as recited in claim 13 in the present application. Ainsworth discloses applying a film of polyurethane that is applied to each side of the coated wire and fusing the coating together at the edges to entirely encapsulate the coated, insulated wire. The polyurethane films are thermally extruded into film form and brought into contact with the assembly in film form. The polyurethane film is applied hot and contacted with the wire construction by passing through the nip of two compression rollers. Ainsworth does not teach a positive die nor a laminate being applied to a positive die. Extruding and passing the wire construction through compression rollers is not a “laminate being applied to a positive die” as claimed. Nor does Ainsworth show or teach that the laminate is “shaped” as recited in claim 13.

Extrusion is the act or process of pushing or thrusting out. An extruder is a machine for producing more or less continuous lengths of material sections. A die, on the other hand, is a device used for cutting out, forming or stamping material. Therefore, extruding is different than positive die processing. Moreover, even if given this were the case (which it is not) NO laminate is applied to an extruder in any of the prior art. Each film is extruded separately, i.e. when extruded, no laminate is present in Ainsworth.

Withdrawal of the rejection to claim 13 under 35 U.S.C. §102(b) as being anticipated by Ainsworth et al. is respectfully requested. As claims 14, 16, 19, 20 and 26 are dependent on claim 13, withdrawal of the rejections under 35 U.S.C. §102(b) to claims 14, 16, 19, 20 and 26 is respectfully requested.

Ainsworth et al. - Rejection of Claim 20 Argued Separately

With further respect to claim 20, claim 20 recites “[t]he flat cable as recited claim 13 wherein the conductors of the conductor track are exposed at least in partial sections of their surface prior to lamination for forming contact fields.” Ainsworth does not show or teach this limitation.

Withdrawal of the rejection to claim 20 under 35 U.S.C. §102(a) as anticipated by Ainsworth et al. is respectfully requested.

Claims 22 and 24

Claims 22, and 24 were rejected under 35 U.S.C. §102(b) as being anticipated by Ainsworth et al. (U.S. Patent No. 4,924,037).

Ainsworth is discussed above.

Independent claim 22 recites in relevant part “applying a positive die to a laminate.”

As discussed above, extruding is different than positive die processing. Furthermore, NO laminate is applied to an extruder in any of the prior art. Each film is extruded separately, i.e. when extruded, no laminate is present in Ainsworth.

Withdrawal of the rejection to claim 22 under 35 U.S.C. §102(b) as being anticipated by Ainsworth et al. is respectfully requested. As claim 24 is dependent on

claim 22, withdrawal of the rejection under 35 U.S.C. §102(b) to claim 24 is also respectfully requested.

Claim 25

Claim 25 was rejected under 35 U.S.C. §102(b) as being anticipated by Ainsworth et al. (U.S. Patent No. 4,924,037).

Ainsworth is discussed above.

Claim 25 recites in relevant part “the laminate being applied to a positive die.”

Ainsworth does not disclose “the laminate being applied to a positive die” as recited in claim 25 of the present application. As discussed above, Ainsworth discloses applying a film of polyurethane that is applied to each side of the coated wire and fusing the coating together at the edges to entirely encapsulate the coated, insulated wire. The polyurethane films are thermally extruded into film form and brought into contact with the assembly in film form. The polyurethane film is applied hot and contacted with the wire construction by passing through the nip of two compression rollers. Therefore, Ainsworth does not teach a positive die nor a laminate being applied to a positive die. Extruding and passing the wire construction through compression rollers is not a “laminate being applied to a positive die” as recited in claim 25.

As discussed above, extruding as described in Ainsworth is different than positive die processing. In Ainsworth, each film is extruded separately, i.e. when extruded; no laminate is present in Ainsworth.

Withdrawal of the rejection to claim 25 under 35 U.S.C. §102(b) as being anticipated by Ainsworth et al. is respectfully requested.

35 U.S.C. 103(a) Rejections:

Ainsworth

Claims 15, 17 and 18 were rejected under 35 U.S.C. §103(a) as being unpatentable over Ainsworth.

Claims 15, 17, 18 depend from claim 13. In view of the comments above with respect to claim 13, withdrawal of the rejections to the claims under 35 U.S.C. §103(a) is respectfully requested.

Ainsworth - Rejection of Claim 17 Argued Separately

With further respect to claim 17, claim 17 recites “[t]he flat cable as recited in claim 15 wherein an additional porous layer is provided for covering for better handling.” Ainsworth does not show or teach this limitation, nor is there any reason to modify Ainsworth to have “an additional porous layer is provided for covering for better handling” as recited in claim 17 of the present invention.

Withdrawal of the rejection to claim 17 under 35 U.S.C. §103(a) as obvious over Ainsworth et al. is respectfully requested.

Ainsworth in view of Takahasi et al.

Claims 21 and 23 were rejected under 35 U.S.C. §103(a) as being unpatentable over Ainsworth in view of Takahasi et al., EP 0590694.

Claims 21 and 23 depend from claim 13. In view of the comments above with respect to claim 13, withdrawal of the rejections to the claims under 35 U.S.C. §103(a) is respectfully requested

Ainsworth in view of Takahasi et al. - Rejection of Claim 23 Argued Separately

With further respect to claim 23, claim 23 recites “[t]he method as recited in claim 22 wherein for equalizing the temperature, a metal foil is used during the laminating process and/or in the die.”

In the Final Office Action, the Examiner admits that “Ainsworth doesn’t necessarily disclose...the method of utilizing the support layer being metallic during the laminating process.” See Final Office Action, page 7, lines 3 to 5.

In the Final Office Action, the Examiner then asserts: “Takahasi discloses a method of making a wire harness...wherein a metallic foil (32) is applied to the insulated conductors (12) by applying heat via a heating plate (29) to heat the adhesive layer (26, Col 10, lines 1-55), thereby resulting in the metallic foil layer (32) being



bonded to the insulated conductors(12). See Final Office Action, page 7, lines 9 to 13.

However, Takahasi recites: “[f]or printing , an adhesive paste with high viscosity or fine powder of thermoplastic resin such as polyvinyl chloride resin or polyvinyl chloride foam are used. The pre-sheet 32’ is passed through the furnace 31 to produce a paste sheet 32 of hot gel.” See Takahasi, col 10, lines 40 to 45. Therefore, Takahasi teaches that paste sheet 32 is composed of a thermoplastic resin such as polyvinyl chloride resin or polyvinyl chloride foam, and therefore paste sheet 32 of Takahasi is not a metallic foil layer as alleged by the Examiner.

Neither Ainsworth nor Takahasi teach or show having any reason “for equalizing the temperature” during the laminating process much less the use of a metal foil during the laminating process and/or in the die to equalize the temperature.

Thus, neither Takahasi nor Ainsworth show or teach the limitation of “[t]he method as recited in claim 22 wherein for equalizing the temperature, a metal foil is used during the laminating process and/or in the die” as recited in claim 23 of the present invention.

Withdrawal of the rejection to claim 23 under 35 U.S.C. §103(a) as obvious to Ainsworth in view of Takahasi et al. is respectfully requested.

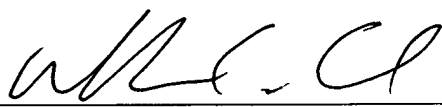
**CONCLUSION**

It is respectfully submitted that the application is in condition for allowance.  
Favorable consideration of this Appeal Brief is respectfully requested.

Respectfully submitted,

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**APPENDIX A:**

**APPEALING CLAIMS 13 to 26 OF  
U.S. APPLICATION SERIAL NO. 10/537,082**

Claim 13 (previously presented): A three-dimensionally shaped flat cable comprising:  
a laminate including at least one conductor track enclosed between two insulation layers, an adhesive layer, and at least one support layer, the support layer connected to at least one of the insulation layers via the adhesive layer, the laminate being applied to a positive die and shaped by applying one of heat, radiation and pressure and fixed in a three-dimensional shape by cooling to below the glass transition temperature of the adhesive layer or by hardening the adhesive layer.

Claim 14 (previously presented): The flat cable as recited in claim 13 wherein the support layer is made of a metal foil or a plastic sheet.

Claim 15 (previously presented): The flat cable as recited in claim 13 wherein the support layer is a porous layer.

Claim 16 (previously presented): The flat cable as recited claim 13 wherein the adhesive layer is composed of an at least one of thermoplastic adhesive, an adhesive foil and an adhesive-bonded nonwoven having a melting point  $T_m$  of  $<180^{\circ}\text{C}$  or a latent reactive adhesive having a cross-linking temperature of  $<140^{\circ}\text{C}$ .

Claim 17 (previously presented): The flat cable as recited in claim 15 wherein an additional porous layer is provided for covering for better handling.

Claim 18 (previously presented): The flat cable as recited in claim 17 wherein the porous layer is made of a nonwoven or a fabric of polymer fibers.

Claim 19 (previously presented): The flat cable as recited claim 13 wherein the flat cable is at least partially back-coated using a thermoplastic.

Claim 20 (previously presented): The flat cable as recited claim 13 wherein the conductors of the conductor track are exposed at least in partial sections of their surface prior to lamination for forming contact fields.

Claim 21 (previously presented): The flat cable as recited in claim 13 wherein the flat cable is fitted with electronic components.

Claim 22 (previously presented): A method for manufacturing a dimensionally stable flat cable comprising:

applying to a positive die, adjusted at room temperature, a laminate, the laminate including (a) a conductor track enclosed between two insulation layers, (b) an adhesive layer, and (c) a support layer connected to at least one of the insulation layers via the adhesive layer, each of (a), (b) and (c) defining a laminate component, or applying a positive die separately to all components for the laminate, and

shaping the laminate or the components with the aid of at least one of heat, radiation and pressure; and

fixing the laminate or the component shape by cooling to below the glass transition temperature  $T_g$  of the adhesive layer or by hardening the adhesive layer.

Claim 23 (previously presented): The method as recited in claim 22 wherein for equalizing the temperature, a metal foil is used during the laminating process and/or in the die.

Claim 24 (previously presented): The method as recited in claim 22 wherein the laminate components, fixed in their shape, are installed in a separate step or are back-coated in an injection molding process using a thermoplastic.

Claim 25 (previously presented): A three-dimensionally shaped flat cable comprising:

a laminate including a flexible flat cable, an adhesive layer, and at least one support layer, the support layer connected to the flexible flat cable via the adhesive layer, the laminate being applied to a positive die and shaped by applying one of heat,

Appl. No. 10/537,082  
Appeal Brief dated January 25, 2008

radiation and pressure and fixed in a three-dimensional shape by cooling to below the glass transition temperature of the adhesive layer or by hardening the adhesive layer.

Claim 26 (previously presented): The flat cable as recited in claim 13 wherein the laminate is fixed with respect to the die.

**APPENDIX B**

Evidence Appendix under 37 C.F.R. §41.37 (c) (ix):

No evidence pursuant to 37 C.F.R. §§1.130, 1.131 or 1.132 and relied upon in the appeal has been submitted by appellants or entered by the examiner.

**APPENDIX C**

Related proceedings appendix under 37 C.F.R. §41.37 (c) (x):

As stated in “2. RELATED APPEALS AND INTERFERENCES” of this appeal brief, appellants, their legal representatives, and assignee are not aware of any appeal or interference that directly affects, will be directly affected by, or will have a bearing on the Board’s decision in this appeal.